

REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application. Applicants request reconsideration of the subject application based on the following remarks.

Claims 1-25 are pending in this application of which claims 4-6, 14, and 15 have been withdrawn from consideration. Claim 22 has been amended. No new matter has been introduced by virtue of the amendments made to the claims. For instance, support for the amended claims appears throughout the specification and claims as originally filed.

Claim 22 was rejected under 35 U.S.C. §112, second paragraph, as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 22, as amended, has been rewritten in independent format and provides polyamide resin compositions comprising a mixture of:

100 parts by weight of a polyamide resin mixture comprising

(A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof
and

(B) 10 to 80% by weight of an aromatic polyamide resin, said aromatic polyamide resin having diamine units comprising 10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units, and aliphatic dicarboxylic acid units;

(C) 0 to 300 parts by weight of an inorganic filler; and
one or more additives selected from the group consisting of antistatic agent, coloring material, release agent, lubricant, plasticizer, nucleating agent, and stabilizers.

Claim 17, as amended, provides polyamide resin composition consisting essentially of:
100 parts by weight of a polyamide resin mixture comprising

(A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof
and

(B) 10 to 80% by weight of an aromatic polyamide resin; and

(C) 0 to 300 parts by weight of an inorganic filler,

said aromatic resin mainly comprising polyamide obtained from polycondensation reaction of a diamine mixture comprising 10 to 50 mol% of paraxylylenediamine and 50 to 90 mol% of methaxylylenediamine, and an aliphatic dicarboxylic acid.

None of the cited references teach or suggest a polyamide resin composition satisfying the language of claim 17.

Claim 17 was rejected under 35 U.S.C. §103 (b) as being allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over EP 0585056.

The rejection is traversed.

In contrast, EP 0585056 teaches a resin composition comprising as essential components: (1) an MX nylon, (2) a modified polyphenylene ether resin, (3) a fibrous inorganic filler, (4) a powdery inorganic filler, (5) an epoxy resin and (6) a copper compound and/or a powdery phenolic resin.

A modified polyphenylene ether resin is essential component of the resin composition recited by EP '056. In contrast, the resin of the present invention does not comprise polyphenylene ether resins. More particularly, polyphenylene ether resins are not an essential component of the resins of the present invention. Moreover, one skilled in the art would not have been motivated to make resins of the present invention from the teachings of EP '056. Further, it would not have been obvious to create new resins having improved weathering by eliminating the essential polyphenylene ether resin component of the composition recited in EP '056.

Thus the polyamide resin composition and improved weather resistance provided by the present invention differs from the resin composition of EP '056. Therefore, claim 17 is patentable over the disclosure of EP '056 and the polyamide resin provided by claim 17 would not have been obvious to one skilled in the art based on the disclosure of EP '056.

Claim 17 was rejected under 35 U.S.C. §103 (b) as being allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over EP 0620244 (EP '244).

The rejection is traversed.

EP '244 teaches biaxially stretched food packaging film having at least one layer composed of (A) a polyamide-based mixed resin containing 20 to 70 wt% of an aliphatic polyamide, (B) 5 to 35 wt% of an amorphous polyamide, (C) 5 to 45 wt% of a xylilene-based polyamide, and (D) 5 to 50 wt% of a polyamide-modified ionomer.

As the reference is understood, the biaxially stretched food packaging film recited in the EP '244 document allegedly possess excellent heat resistance, oxygen-gas barrier properties, transparency, moisture permeation resistance, flexibility, heat-shrinkable properties and toughness.

The polyamide based resin recited by the EP '244 document **must** include between 5 and 50 weight percent of a polyamide-modified ionomer as an essential component of the resin mixture. As the reference is understood, the polyamide-modified ionomer is a mixture of a polyamide and an ethylene/acrylate copolymer in which the carboxylic acid residues of the acrylate monomer units exist as a metal salt, e.g., a metal carboxylate of zinc, lithium, potassium, magnesium, calcium, or sodium. The polyamide/poly(ethylene-co-acrylate) mixture is then heated to between 200 to 350 °C to form the polyamide modified ionomer.

In contrast, the present invention provides polyamide resin mixtures with improved weathering resistance which **consist essentially** of (1) a polyamide 6 resin, a polyamide 66 resin

or mixture thereof, (2) an aromatic polyamide resin; and (3) inorganic filler. The polyamide composition provided by the present invention do not contain a polyamide modified ionomer, such as the polyamide modified ethylene-metal acrylate copolymers recited by EP '244, in the resin composition.

Moreover, EP '244 neither discloses nor suggests a polyamide resin composition of the present invention **consisting essentially** of (1) a polyamide 6 resin, a polyamide 66 resin or mixture thereof, (2) an aromatic polyamide resin; and (3) inorganic filler. Further, EP '244 neither discloses nor suggests any resin composition, including those disclosed therein or in the present invention, would possess excellent bending modulus of elasticity and heat resistance, high in degree of crystallization even at a relatively low mold temperature, capable of providing the molded products with fine visual appearance and having excellent weathering resistance which has excellent thermal and mechanical properties and surface appearance, and particularly is capable of maintaining gloss with minimized surface roughening and change of color tone even if left in an outdoor exposure environment, and the molded products of such a resin composition, that is, the aspect and technical advantages of our invention.

Thus the polyamide resin composition and improved weather resistance provided by the present invention differs from the resin composition of EP '244. Therefore, claim 17 is patentable over the disclosure of EP '244 and the polyamide resin provided by claim 17 would not have been obvious to one skilled in the art based on the disclosure of EP '244.

Claims 1-3, 7-13, and 16-25 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over EP 0839862 (EP '862).

As the reference is understood, EP '862 teaches a heat-aging-resistant polyamide resin composition, comprising a polyamide (A), a polyamide (B), a copper compound (D), a halide (E), a hindered phenol (F) or a hindered amine (G), and an organophosphorus compound (H). The polyamide (A) is obtained by polymerizing a monomer containing 70 mole% or more of m-

xylylenediamine as a diamine component and a monomer containing 70 mole% or more of adipic acid as a dicarboxylic acid as a dicarboxylic acid component.

The office action asserts that although the disclosure of EP '862 differs from the present claims in not expressly exemplifying a polyamide additionally having p-xylylenediamine units. The Office action further alleges that, in the absence of evidence of unusual or unexpected results, it would have been obvious to one skilled in the art to have used a polyamide having both m-xylylene diamine units and p-xylylenediamine units, in amounts falling within the scope of the present claims.

Applicants provide herewith a Declaration under 37 C.F.R. 1.132 executed by Mr. Hirono, one of the inventors of the present invention, in which he reports that the polyamide resin compositions provide superior weathering resistance properties including increased retained glossiness after irradiation and reduced surface roughening compared to materials recited by EP '862.

Applicants have surprisingly discovered improved weather resistance is provided by polyamide resin compositions consisting essentially of a polyamide resin mixture comprising (A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof, and (B) 10 to 80% by weight of an aromatic polyamide resin composed of an aliphatic dicarboxylic acid and a mixture of paraxylylenediamine units and methaxylylenediamine units and optionally comprises (C) an inorganic filler

Applicants have surprisingly discovered that the polyamide resin compositions of the present invention offer superior physical properties, including improved especially excellent weathering resistance, minimized surface roughening, high gloss stability, reduced color tone change after exposure outdoors, compared to the compositions recited by EP '862. The attached Declaration recites Experiments 1 and 2, which provide polyamide resin compositions satisfying the language of the claimed invention (paragraph 4.1); Experiment 3 corresponds to the

composition of Example 2 of EP '862 (paragraph 4.2); and Experiment 4 corresponds to composition of Example 3 of EP '862 (paragraph 4.3).

The polyamide resin compositions recited by each of Experiments 2, 3, and 4 contain the identical additives with identical loadings in the resin composition. That is, each of Experiments 2, 3, and 4 contain 0.02% CuI, 0.4% KI, 0.5% of a phenolic antioxidant and 0.5% of a phosphoric antioxidant. The different polyamide resin blend used in the polymer polyamide resin compositions of Experiment 2 and Experiment 3 and 4 accounts for the superior resistance to weathering exhibited by the resin composition of Experiment 2.

The resin compositions of Experiments 1 and 2 comprise the same polyamide resin blend but differ in that the resin of Experiment 1 does not comprise additional additives which are present in the resin of experiment 2.. More particularly, the polyamide resin compositions of Experiment 1 and 2 consist essentially of (1) polyamide 6, polyamide 66 or a mixture thereof, (2) an aromatic polyamide resin having both paraxylylenediamine and methaxylylenediamine monomer repeat units, and (3) optionally an inorganic filler (present in the resin of Experiment 2). In contrast, the resin compositions of Experiments 3 and 4 contain an aromatic polyamide having only methaxylylenediamine monomer repeat units.

As indicated by the evaluation data presented in Table 1 on page 7 of the Declaration, polyamide resin compositions of the claimed invention offer superior glossiness after extended irradiation and reduced surface roughening compared to the resin compositions of the EP '862. One skilled in the art would not have reason to expect the improved physical properties at the time the invention was made based on the disclosure of EP '862 alone or in combination with any of the documents cited in the instant application.


Thus, claims 1, 17, 22, and 23 are patentable over the disclosure of EP '862. Claims 2-16, 18-21 and 24-25 depend from one of claims 1, 17, 22, or 23 and are therefore also patentable over the disclosure of EP '862.

Applicants request rejoinder and consideration of the non-elected claims, e.g., claims 4-6, 14, and 15 in the present application.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

Date: November 24, 2003



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